

Marconi press release - English

New Cineca Supercomputer 'MARCONI' now available for Italian and European research

Deployment of this Lenovo system based on Intel® Architecture, with peak performance of 20Pflop/s, to start mid-April.

Casalecchio di Reno (Bologna), April 4, 2016 — The deployment of this new Italian supercomputer for research, co-designed by Cineca and based on the Lenovo NeXTScale platform, will begin in the middle of April. The new supercomputer, based on the next-generation of the Intel® Xeon Phi™ product family alongside with Intel® Xeon® processor E5-2600 v4 product family, will offer the scientific community a technologically advanced and energy-efficient high performance computing system.

The acquisition agreement was signed on March 30, after a negotiated selection procedure which started more than a year ago via a European tender published in April 2015. The procedure was closed in December 2015, awarding the realisation of the computing system to Lenovo, one of the three major global manufacturers in the Intel x86 architecture-based server market.

This achievement represents the first step of the Italian infrastructure development plan put forward by the Cineca governing bodies, aimed at supporting scientific research. The global plan entails an investment of Euro 50 million in two phases. The first, just started, will make available to the scientific community a computational power of about 20Pflop/s and a data storage capacity of more than 20 petabytes, which will go into production, reaching completion in the second half of 2017. The second phase will start during 2019, with a final goal to increase available computing power to approximately 50 to 60 Pflop/s by 2020.

"With this plan, Cineca reaffirms its institutional mission to offer a digital infrastructure of excellence for computing and Big Data, available to scientific research and technological innovation," said Emilio Ferrari, President of Cineca.

The new system, logically named 'MARCONI', will gradually be completed in little more than 12 months, between April 2016 and July 2017, according to a plan based on a series of updates:

- A preliminary system will go into production in June. This will be based on the recently announced Intel® Xeon® processor E5-2600 v4 product family, based on Intel's x86 architecture, and is designed to reach a computational power of 2Pflop/s.
- By the end of the year a new section will be added, equipped with the next-generation of the Intel Xeon Phi product family (codenamed Knights Landing), based on a many-core architecture, enabling an overall configuration of about 250 thousand cores with expected additional computational power of approximately 11Pflop/s.
- Finally, in the near future, this system is planned to reach a total computational power of about 20Pflop/s utilizing future generation Intel Xeon processors.

This supercomputer takes advantage of the new Intel® Omni-Path Architecture, which provides the high performance interconnectivity required to efficiently scale the system's thousands of servers.

A high-performance Lenovo GSS storage subsystem, that integrates the IBM Spectrum Scale™ (GPFS) file system, is connected to the Intel Omni-Path Fabric and provides data storage capacity.

The progressive development of the Marconi system will allow use of state-of-the-art processor technology, enabling an extremely high-performance system but still with a 'green' soul. One of the parameters of the project developed by the Cineca team is in fact to gradually increase the computational power up to 50Pflop/s without exceeding, at any stage, the limit of 3MWatt power consumption.

"By providing the most powerful supercomputing systems, we will enable researchers to address the major scientific and socio-economic challenges of our time, spanning from precision medicine to climate change, from fundamental physics to new materials. Supercomputing and Big Data analytics are essential tools for computational and data-driven science for national and international research", said Sanzio Bassini, Director of Supercomputing and Innovation Department at Cineca.

"We can only be proud, both as a company and as an Italian team, to have been chosen by Cineca for a system of enormous national and international scientific relevance", said Mirko Poggi, CEO of Lenovo Italia. *"We are ready to take all the necessary steps to ensure the best possible computational and energy performance from the architecture which will be realised at Cineca, in order to benefit the wider community that will use it",* added Marco Briscolini, Managing Director of the High Performance Computing segment at Lenovo Italia.

"We are delighted for the opportunity to bring the benefits of the Intel® Scalable System Framework to the Cineca community of leading Italian researchers and data scientists. Intel's highly interoperable and performance-optimized suite of HPC products—including Intel® Xeon® processors, Intel® Xeon Phi™ processors, and Intel® Omni-Path Architecture—provides a balanced design that delivers the enormous performance and scalability needed to tackle the extreme challenges of both HPC and big data analytics on a common infrastructure", says Carmine Stragapede, General Manager of Intel Italia.

About Cineca

Cineca is an inter-university computing consortium based in Casalecchio di Reno, Italy. Founded in 1969, this non-profit consortium is made up of 70 Italian universities, 5 research institutions and the Ministry of Education, University and Research (MIUR). It has been providing support for over forty years to research activities of the scientific community through supercomputing and its applications, thanks to a technology infrastructure among the most powerful in the world. It creates management systems for university administrations and MIUR and it designs and develops information systems for enterprises, healthcare and public administration.

About Lenovo

Lenovo is a \$46 billion global Fortune 500 company and a leader in providing innovative technology and services in different market segments: consumer, business and large public and private companies. Lenovo is a world leader in manufacturing and selling PCs, workstations, servers, storage, smart TVs and a family of mobile products like smartphones and tablets. www.lenovo.com.

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